IS 10340 (1982): Glossary of terms for cold-reduced tinplate and cold-reduced blackplate [MTD 4: Wrought Steel Products]

BLANK PAGE

IS : 10340 - 1982
(Reaffirmed 2003)

Indian Standard

GLOSSARY OF TERMS FOR COLD-REDUCED TINPLATE AND COLD-REDUCED BLACKPLATE

UDC 669·6-41-131·2+669·14-41-131·2 : 001·4

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2

February 1983

Indian Standard

GLOSSARY OF TERMS FOR COLD-REDUCED TINPLATE AND COLD-REDUCED BLACKPLATE

Wrought Steel Products Sectional Committee, SMDC 5

Chairman	*Representing*
DR U. N. BHRANY	Modella Steel & Alloys Ltd, Bombay
Members	
SHRI S. BANERJEE	Steel Re-Rolling Mills Association of India, Calcutta
SHRI S. K. BASU	M. N. Dastur & Co Pvt Ltd, Calcutta
SHRI G. K. JHA (*Alternate*)	
SHRI A. P. BHATNAGAR	Steel Authority of India Ltd (Durgapur Steel Plant)
SHRI J. BANERJEE (*Alternate*)	
SHRI Y. P. S. BISHNOI	Steel Authority of India Ltd (Bokaro Steel Plant)
SHRI A. M. BISWAS	National Test House, Calcutta
SHRI K. L. BARUI (*Alternate*)	
DEPUTY DIRECTOR (MET)	Ministry of Railways
SHRI S. C. DEY	Central Boilers Board, New Delhi
SHRI B. K. DUTTA	Iron & Steel Control, Calcutta
SHRI P. R. DAS (*Alternate*)	
SHRI C. R. GHOSH	Mukand Iron & Steel Works Ltd, Bombay
SHRI H. P. PRIOLKAR (*Alternate*)	
SHRI A. K. JEE	Ministry of Defence (DGI)
SHRI V. I. RAMASWAMY (*Alternate*)	
SHRI SUDHAKAR JHA	Steel Authority of India Ltd (R & D Centre for Iron & Steel, Ranchi)
JOINT DIRECTOR STDS (W)/I&L	Ministry of Railways
JOINT DIRECTOR (IRON & STEEL) (*Alternate*)	
SHRI ONKAR S. KANWAR	Association of Indian Engineering Industry (Steel Tubes Division), New Delhi
SHRI V. B. KHANNA	Directorate General of Supplies & Disposals (Inspection Wing), New Delhi
SHRI D. K. PAUL (*Alternate*)	

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
DR K. V. KRISHNAMURTHY	Bharat Heavy Electricals Ltd
SHRI A. K. MITTAL (*Alternate* I)	
SHRI U. MOHAN RAO (*Alternate* II)	
SHRI C. K. KURIAKOSE	Hindustan Shipyard Ltd, Vishakhapatnam
SHRI N. S. R. V. RAJU (*Alternate*)	
DR T. MUKHERJEE	Tata Iron & Steel Co Ltd, Jamshedpur
SHRI A. N. MITRA (*Alternate*)	
SHRI SATISH MURANJAN	Special Steels Ltd, Bombay
SHRI M. R. DOCTOR (*Alternate*)	
SHRI K. R. NARASIMHAN	Metal Box India Ltd, Calcutta
SHRI A. G. SHRIMANKAR (*Alternate*)	
SHRI K. V. PAI	Steel Authority of India Ltd (Indian Iron & Steel Co Ltd, Burnpur)
SHRI T. K. DATTA (*Alternate*)	
PROF S. S. PANI	Steel Authority of India Ltd (Rourkela Steel Plant)
SHRI S. G. TUDEKAR (*Alternate*)	
SHRI RAGHUBIR SINGH	National Metallurgical Laboratory (CSIR), Jamshedpur
SHRI SISIR SEN	Steel Authority of India Ltd (Bhilai Steel Plant)
SHRI D. SRINIVASAN	Joint Plant Committee, Calcutta
SHRI B. P. GHOSH (*Alternate*)	
SHRI Y. P. SYNGAL	Federation of Engineering Industries of India, New Delhi
SHRI H. L. BHARDWAJ (*Alternate*)	
SHRI C. R. RAMA RAO, Director (Struc & Met)	Director General, ISI (*Ex-officio Member*)

Secretary

SHRI V. K. JAIN
Deputy Director (Metals), ISI

Panel for Tinplate, SMDC 5/P-8

Convener	
SHRI K. R. NARASIMHAN	Metal Box India Ltd, Calcutta
Members	
SHRI J. N. BHAMBRY	Steel Authority of India Ltd (Rourkela Steel Plant)
SHRI O. N. TANDON (*Alternate*)	
CHAIRMAN, TECHNICAL STANDARDIZATION COMMITTEE (FOOD STUFFS)	Ministry of Agriculture & Irrigation, New Delhi
SECRETARY, TECHNICAL STANDARDIZATION (*Alternate*)	
SHRI BASUDEOLAL GOENKA	Tinplate Fabricators Association, Calcutta
SHRI G. S. KADBET	Poysha Industrial Co Ltd, Bombay
SHRI P. D. KATRAK	Zenith Tin Works Pvt Ltd, Bombay
MAJ-GEN M. C. S. MENON	Tinplate Co of India Ltd, Golmuri Jamshedpur
SHRI C. G. GOSH (*Alternate*)	
SHRI R. N. SAHU	Directorate General of Supplies & Disposals, New Delhi
SHRI VINAY KUMAR	K. R. Steelunion Pvt Ltd, Bombay

Indian Standard

GLOSSARY OF TERMS FOR COLD-REDUCED TINPLATE AND COLD-REDUCED BLACKPLATE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 November 1982, after the draft finalized by Wrought Steel Products Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard has been prepared with a view to guiding the manufacturers and users of tinplate and to assist them in the unified interpretation of common terms used in the trade.

---

1. SCOPE

1.1 This standard covers a list of general trade terms relating to cold-reduced tinplate and cold-reduced blackplate together with their definitions.

2. TERMS AND DEFINITIONS

2.1 Steel Types

2.1.1 *Stabilized* (*Also Known as Type D*) — Low carbon steel fully deoxidised by addition of suitable deoxidant, for example, aluminium. This type of steel possesses virtually no strain-ageing characteristics.

2.1.2 *Rimmed Steel* (*Non-stabilized*) — Low carbon steels that are not deoxidised by some deoxidant. This type of steel is prone to flutting and ageing.

2.1.3 *Nitrogenized* — Steel containing a controlled amount of nitrogen customarily introduced during the steel making process as strengthening and hardening element. It may be used for the high tinplate tempers.

2.2 Plate Types

2.2.1 *Cold-Reduced Blackplate* — Low carbon mild steel strip/sheet produced continuous or semi-continuous cold-reduction of hot-rolled steel strip/sheet.

2.2.2 *Cold-Reduced Hot-Dipped Tinplate* — Cold-reduced low carbon mild steel strip/sheet which has been tinned by the hot-dip tinning process.

2.2.3 *Cold-Reduced Electrolytic Tinplate* — Low carbon mild steel cold-reduced strip/sheet which has been tinned by the electrolytic process.

2.3 Annealing Types

2.3.1 *Batch Annealing* — Annealing of cold-reduced strip in coil form, within a protective atmosphere.

2.3.2 *Continuous Annealing* — Annealing of cold-reduced strip in a single thickness within a protective atmosphere. This produces relatively stiffer product which exhibits a finer grain size than batch annealed material.

2.4 Post Plating Surface Treatments

2.4.1 *Flow Brightening* — Process used to produce a bright tin coating from the silvery white as plate deposit by rapid melting of tin under controlled conditions of heating and quenching.

2.4.2 *Passivation* — Chemical or electrochemical treatment applied to electrolytic tinplate to produce a stabilized surface of improved resistance to surface discolouration and superior lacquering and lithographic properties.

2.4.3 *Oiling* — Application of a very thin uniform oil film (generally dioctyl sebacate) to the surface of electrolytic tinplate by passage through the oil.

2.4.4 *Oiling-Electrostatic* — Application of a very thin uniform oil film (generally dioctyl sebacate) to the surface of electrolytic tinplate by electrostatic deposition of fine oil particles from a mist.

2.5 Grades

2.5.1 *Blackplate*

2.5.1.1 *First grade (prime)* — Blackplates which at the time of despatch are free from defects readily visible to the unaided eye. Under normal conditions of storage and use, they are suitable for lacquering and printing over the whole surface.

2.5.1.2 *Second grade* — Seconds is the grade designation given to blackplates which at the time of despatch have a minimum of 75 percent of usable area.

2.5.1.3 *Unassorted (grade standard)* — Unassorted (UA) is the grade designation given to blackplates, normally produced in line using usual inspection and classification procedures. These contain primes and seconds. The quality of seconds may be up to 15 percent at the time of despatch.

2.5.2 *Hot Dipped Tinplate*

2.5.2.1 *First (grade prime)* — Tinplates which at the time of despatch are free from defects readily visible to the unaided eye. Under normal conditions of storage and use, they are suitable for lacquering and printing over the whole surface of the sheet.

2.5.2.2 *Second grade* — Seconds is the grade designation given to hot-dipped tinplates which at the time of despatch have a minimum of 75 percent of usable area.

2.5.3 *Electrolytic Tinplate (Equally or Differentially Coated)*

2.5.3.1 *First (grade prime)* — Tinplates which at the time of despatch are free from defects readily visible to the unaided eye. Under normal conditions of storage and use, they are suitable for lacquering and printing over the whole surface of the sheet.

NOTE — Normally this quality is not available.

2.5.3.2 *Second grade* — Seconds is the grade designation given to electrolytic tinplates which at the time of despatch have a minimum of 75 percent of usable area.

2.5.3.3 *Unassorted grade (standard)* — Unassorted (UA) is the grade designation given to electrolytic tinplates, normally produced in line using usual inspection and classification procedures. These contain primes and seconds. The quantity of seconds may be up to 15 percent at the time of despatch.

2.5.4 *Menders* — Hot dipped or electrolytic tinplate, initially rejected for surface blemishes, which can be repaired or made good by retinning in the hot-dipping process.

2.5.5 *Unmended Menders* — Electrolytic menders which have not been repaired by hot-dipped tinning. They have superficial defects mainly affecting the surface appearance, but they conform to the specified tin coating weight.

2.5.6 *Waste-Waste*

2.5.6.1 *Assorted waste-waste (hot dipped and electrolytic)* — Tinplate which at the time of despatch may have visible imperfections of moderate magnitude or frequency, and is supplied assorted to size, gauge, tin coating and temper.

2.5.6.2 *Unassorted waste-waste (hot dipped and electrolytic)* — Tinplate which at the time of despatch may have visible imperfections of moderate magnitude or frequency. This material is generally supplied in mixed sizes, tempers and thickness and may be off the tolerance in tin coating masses and can be a mixture of bright, matt or stone finish.

2.5.7 *Mill Excess or Mill Over Runs* — These are tinplates of standard grade (unassorted grade) accumulating in the mills as a result of production having exceeded specific order, calcellation of orders, etc, and supplied assorted in terms of size, gauge and temper.

2.6 Packages and Unit of Trading

2.6.1 *Bulk Package (Sometimes Erroneously Termed 'Stillage')* — Pack or multiple packing unit comprising stillage, tinplate and packaging material for the shipping of tinplate.

2.6.2 *Standard Unit Area of Tinplate (SITA)* — Area of 100 square metres of tinplate is equal to one SITA (System International Tinplate Area).

2.6.3 *Stillage (Sometimes Erroneously Termed 'Bulk')* — Wooden base platform on which tinplate sheets are stocked to facilitate packing and ready transportation.

2.6.4 *Unit (Packaging)* — 100 sheets of given dimensions.

2.7 Miscellaneous Terms

2.7.1 *List Edge (or Drip)* — The trailing edge of the sheet during passage through the hot-dip tinning bath. Due to the effect of tin flow and surface tension, the plate, on emergence from the molten tin, carries a thicker tin coating at this edge. Generally the list-edge is deemed to start at the point where the thickness of the sheet has increased by 0·10 mm.

2.7.2 *Rolling Width* — The dimension at right angles to the rolling direction.

2.7.3 *Shear Out Dimension* — The dimension parallel to the rolling direction.

2.7.4 *Line Inspection* — Final inspection of the finished product prior to its classification into the different quality grades. Inspection may be performed by instruments and/or visual examination.

2.7.5 *Temper* — Summarizing a combination of interrelated mechanical properties. In practice an arbitrary number is used to designate a specified Rockwell 30 T hardness range, which gives a guide to the fabricating properties of the plate.

2.7.6 *Tinplate Strips* — In coated low carbon steel sheets in which the length is many times the breadth. These are essentially cuttings/arisings from unassorted and assorted waste waste quality tinplate and are generally sold without specifications excepting for the range of thickness and dimensions.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Definition
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

AMENDMENT NO. 1 SEPTEMBER 1984

TO

IS:10340-1982 GLOSSARY OF TERMS FOR COLD-REDUCED TINPLATE AND COLD-REDUCED BLACKPLATE

Corrigenda

(*Page 4, clause 2.2.1, line 2*) - Add 'by' between the words 'produced' and 'continuous'.

(*Page 5, clause 2.5.1.3, title*) - Substitute '*Unassorted grade (standard)*' for '*Unassorted (grade standard)*'.

(*Page 5, clause 2.5.2.1, and 2.5.3.1, titles*) - Substitute '*First grade (prime)*' for '*First (grade prime)*'.

(SMDC 5)

Reprography Unit, ISI, New Delhi, India